CURRENT LIST OF CLAIMS

1.   (Original) A method for a data communications system, the method comprising:

transmitting data in a transport overhead field to at least one network element, the data

providing a source identifier and a destination identifier; and

using the data in the transport overhead field to provide end-to-end services.

2.   (Original) The method of claim 1 wherein the transport overhead field is a J1 field in a SONET communication packet.

3.   (Original) The method of claim 2 wherein the J1 field includes the source identifier and the destination identifier.

4.   (Original) The method of claim 1 further comprising:

applying a routing protocol to read the source identifier and the destination identifier.

5.   (Original) The method of claim 1 wherein the end-to-end services include one or more of routing, provisioning and restoration of functions.

6.   (Original) The method of claim 1 wherein the end-to-end services are path-level services of a SONET communications network.

7.   (Original) The method of claim 1 wherein the method is performed in a communication circuit disposed in one of a synchronous optical network (SONET) and a Synchronous Digital Hierarchy (SDH).

8.   (Original) The method of claim 7, wherein the communication circuit is implemented as a line card.

9.   (Original) The method of claim 7 wherein the communication circuit is a protocol processor.

10.   (Original) The method of claim 1 wherein the data further includes one or more of

       transport identification data (TID),

       Internet Protocol (IP) addresses,

       Common Language Location Information (CLLI) data, and

       requests for bandwidth.

11.   (Original) The method of claim 1 wherein the data providing the source identifier and the destination identifier avoid manual point-by-point routing of STS-Ns.

12.   (Original) The method of claim 1 further comprising:

applying a wavelength routing protocol to the data in the transport overhead field to

       provide end-to-end services,

       the wavelength protocol locating new paths for communication.

13.   (Original) The method of claim 12 wherein an intelligent routing software system in combination with the wavelength routing protocol determines end-to-end routing automatically.

14.   (Original) The method of claim 12 wherein the wavelength protocol locating new paths for communication is implemented manually.

15.   (Original) An apparatus disposed in a communication system, the apparatus comprising:

       means for transmitting data in a transport overhead field to at least one network element,

           the data providing a source identifier and a destination identifier; and

       means for using the data in the transport overhead field to provide end-to-end services.

16.   (Original) The apparatus of claim 15 wherein the transport overhead field is a J1 field in a SONET communication packet.

17.   (Original) The apparatus of claim 16 wherein the J1 field includes the source identifier and the destination identifier.

18.   (Original) The apparatus of claim 15 further comprising:
means for applying a routing protocol to read the source identifier and the destination
identifier.

19.   (Original) The apparatus of claim 15 wherein the end-to-end services include one or more of routing, provisioning and restoration of functions.

20.   (Original) The apparatus of claim 15 wherein the end-to-end services are path-level services of a SONET communications network.

21.   (Original) The apparatus of claim 15 wherein the apparatus includes a communication circuit disposed in one of a synchronous optical network (SONET) and a Synchronous Digital Hierarchy (SDH).

22.   (Original) The apparatus of claim 21 wherein the communication circuit is implemented as a line card.

23.   (Original) The apparatus of claim 21 wherein the communication circuit is a protocol processor.

24.   (Original) The apparatus of claim 15 wherein the data further includes one or more of
transport identification data (TID),
Internet Protocol (IP) addresses,
Common Language Location Information (CLLI) data, and
requests for bandwidth.

25.   (Original) The apparatus of claim 15 wherein the data providing the source identifier and the destination identifier avoids manual point-by-point routing of STS-Ns.

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26.   (Original) The apparatus of claim 15 further comprising:

means for applying a wavelength routing protocol to the data in the transport overhead

field to provide end-to-end services,

the wavelength protocol locating new paths for communication.

27.   (Original) The apparatus of claim 26 wherein an intelligent routing software

system in combination with the wavelength routing protocol determines end-to-end routing

automatically.

28.   (Original) The apparatus of claim 26 wherein the wavelength protocol locates

new paths for communication manually.

29.   (Original) A computer program product for communication, the computer

program product comprising:

signal bearing media bearing programming adapted to

transmit data in a transport overhead field to at least one network element, the data

providing a source identifier and a destination identifier; and

use the data in the transport overhead field to provide end-to-end services.

30.   (Previously Presented) A method for a data communications system, the method

comprising:

receiving data in a transport overhead field by at least one network element, the data

providing a source identifier and a destination identifier; and

using the data in the transport overhead field to provide end-to-end services.

31.   (Previously Presented) The method of claim 30 wherein the transport overhead

field is a J1 field in a SONET communication packet.

32.   (Previously Presented) The method of claim 31 wherein the J1 field includes the

source identifier and the destination identifier.

33.   (Previously Presented) The method of claim 30 further comprising:

applying a routing protocol to read the source identifier and the destination identifier.

34.   (Previously Presented) The method of claim 30 wherein the end-to-end services include one or more of routing, provisioning and restoration of functions.

35.   (Previously Presented) The method of claim 30 wherein the end-to-end services are path-level services of a SONET communications network.

36.   (Previously Presented) The method of claim 30 wherein

the method is performed in a communication circuit disposed in one of a synchronous

optical network (SONET) and a Synchronous Digital Hierarchy (SDH).

37.   (Previously Presented) The method of claim 36, wherein the communication circuit is implemented as a line card.

38.   (Previously Presented) The method of claim 36 wherein the communication circuit is a protocol processor.

39.   (Previously Presented) The method of claim 30 wherein the data further includes one or more of

transport identification data (TID),

Internet Protocol (IP) addresses,

Common Language Location Information (CLLI) data, and

requests for bandwidth.

40.   (Previously Presented) The method of claim 30 wherein the data providing the source identifier and the destination identifier avoid manual point-by-point routing of STS-Ns.

41.   (Previously Presented) The method of claim 30 further comprising:

applying a wavelength routing protocol to the data in the transport overhead field to

provide end-to-end services,

the wavelength protocol locating new paths for communication.

42.   (Previously Presented) The method of claim 41 wherein an intelligent routing

software system in combination with the wavelength routing protocol determines end-to-end

routing automatically.

43.   (Previously Presented) The method of claim 41 wherein the wavelength protocol

locating new paths for communication is implemented manually.

44.   (Previously Presented) An apparatus disposed in a communication system, the

apparatus comprising:

a receiver configured to receive data in a transport overhead field from at least one

network element,

the data providing a source identifier and a destination identifier,

wherein the receiver uses the data in the transport overhead field to provide end-

to-end services.

45.   (Previously Presented) The apparatus of claim 44 wherein the transport overhead

field is a J1 field in a SONET communication packet.

46.   (Previously Presented) The apparatus of claim 45 wherein the J1 field includes

the source identifier and the destination identifier.

47.   (Previously Presented) The apparatus of claim 44 wherein the receiver applies a

routing protocol to read the source identifier and the destination identifier.

48.   (Previously Presented) The apparatus of claim 44 wherein the end-to-end services include one or more of

routing,

provisioning and

restoration of functions.

49.   (Previously Presented) The apparatus of claim 44 wherein the end-to-end services are path-level services of a SONET communications network.

50.   (Previously Presented) The apparatus of claim 44 wherein the data further includes one or more of

transport identification data (TID),

Internet Protocol (IP) addresses,

Common Language Location Information (CLLI) data, and

requests for bandwidth.

51.   (Previously Presented) The apparatus of claim 44 wherein the data providing the source identifier and the destination identifier avoids manual point-by-point routing of STS-Ns.

52.   (Previously Presented) The apparatus of claim 44 further comprising:

means for applying a wavelength routing protocol to the data in the transport overhead

field to provide end-to-end services,

the wavelength protocol locating new paths for communication.

53.   (Previously Presented) The apparatus of claim 52 wherein

an intelligent routing software system in combination with the wavelength routing

protocol determines end-to-end routing automatically.

54.   (Previously Presented) The apparatus of claim 52 wherein the wavelength protocol locates new paths for communication manually.